

MEMORANDUM

DATE: November 9, 2004

TO: Planning Commission

FROM: Mike DeKalb, Planning Department

SUBJECT: Race Demo, sound test results and additional conditions of approval. Special Permit # 04057

COPY: Marvin Krout, Director of Planning
Ray Hill, Planning
Mark Hunzeker
Dr. David Samani
Lynn Johnson, Parks & Recreation
Rick Thorson, Health Department

Attached please find a copy of the Lincoln-Lancaster County Health Department test results of the proposed Motocross racetrack at SW 2nd and South Street. The test results indicated the mock race did not exceed any of the sound levels for receiving land uses. In fact, at many locations the race noise was not detectable. **However**, the "pass by test" at the west property line severely exceeded the limit of City Code. This is addressed in existing condition 1.f) and would most likely require noise attenuation barriers (such as noise walls) along the west, north, southeast and south property lines. Noise impacts on the trail along the Salt Creek levee would be severe unless properly buffered or relocated.

Impacts on the parks were not as severe as anticipated and sound mitigation at the south end of the Midget football field would be needed. The approval of Parks prior to any event, as noted in condition 1. m) should be retained.

The following additional conditions (underlined>) are suggested by staff, in addition to those in the report:

Site Specific:

1. This approval permits a motorcycle race track on this premise. The facility shall be limited to the following
 - a) Hours of operation shall be noon to 6:00 PM six days a week.
 - b) No more than a total of 45 participants on any race day.

- c) No more than 15 motocross vehicles on the track at any one time.
 - d) Racing events shall only occur between April 1 and November 30.
 - e) The race track shall not be lighted. The parking and skateboard area may have lighting that meets city standard.
 - f) The facility shall meet all City codes for dust and noise.
 - g) All motorized vehicles on this site shall have factory equipped mufflers or muffler that meet factory equipped noise and exhaust specifications.
 - h) Tires and similar barriers shall be managed for mosquito control.
 - i) The facility shall have proper trash disposal facilities and a minimum of two (2) permanent restroom facilities that meet code. Additional temporary restroom facilities shall be provided to meet the occupancy of each event.
 - j) The facility's track will be properly watered down before and between races and practice runs to prevent excessive dust.
 - k) The pond and wetlands will be preserved and protected, to the satisfaction of the Watershed Management Division of Public Works.
 - l) The parking lot shall be paved to city standard.
 - m) All events shall be co-ordinated with the Parks Department and may not occur without permission in advance from the Lincoln Parks Department.
 - n) The total number of participants, guests and spectators on site (occupancy) at any one time shall not exceed 450 persons.
 - o) The east property line, south of the existing fill area, shall have sound mitigation along the entire length abutting the Midget football field facility at Sherman Field, to the satisfaction of the Parks Department.
 - p) The Salt Creek Trail on the levee abutting the west side of this facility shall be properly buffered or relocated to the satisfaction of the Parks Department.
 - q) This special permit shall be in force for five (5) years from the date of approval and can be renewed at that time by administrative amendment of the Planning Director for additional five (5) year increments.
2. The Text amendment to 27.63.570 must be amended to permit this application.
 3. Before receiving building permits:

3.1 The permittee shall complete the following instructions and submit the documents and plans to the Planning Department for review and approval.

3.1.1 A revised site plan including 5 copies showing the following revisions:

2.1.1.1 Show the wetlands protected to the satisfaction of the Public Works Department.

2.1.1.2 Show the ADA access trails to the tracks.

2.1.1.3 Show the tree mass to be preserved and a landscape screen along the length of the abutting midget football field.

Noise Testing Sampling Sheet

Data Collector (Name): Gary Walsh

Date: November 3, 2004

Location of Test: 1 blk north of Folsom Lane, Lincoln, NE @ SW. 8th & Regina Ct. (east of antenna)
(detailed description)

Begin Time: 2:38 p.m.

End Time: 3:19 p.m.

Purpose of Test: Monitoring (Complaint, Monitoring, Background, etc.)

Weather Characteristics:

Temperature: 49.0 °F Cloud Cover: 0 % Cloud Height: -- ft.

Wind Direction: -- Wind Speed: 0 mph Description: Calm
(steady, gusty, variable, etc.)

Type of Measurement: 3 minute L_{eq}
(60-sec. L_{eq}, Peak, etc.)

<u>Reading No.</u>	<u>Measured dB</u>	<u>Notes:</u>
1	50.2	2:38 – 2:41, can hear bikes, not loud
2	50.1	2:43 – 2:46, can hear bikes, not loud
3	49.3	2:48 – 2:51, can hear bikes, not loud
4	53.4	2:57 – 3:00, can hear bikes, not loud
5	51.5	3:07 – 3:10, can hear bikes, not loud
6	56.4	3:11 – 3:14, train whistle / bikes
7	50.8	3:15 – 3:19, can hear bikes, not loud
8		
9		General Notes:
10		Could occasionally hear acceleration.
11		Hard to distinguish bikes from back-
12		ground sounds as far as L _{eq} 's are
13		concerned.
14		With essentially no traffic, noise is about
15		48 dba.
16		Punching throttle causes approx. 2 dba
17		jump in sound level, spike duration
18		less than 1 second.
19		
20		

Lincoln-Lancaster County Health Department

Summary of Motocross Test Results

Prepared by Gary R. Bergstrom, Jr. – Environmental Health Specialist I

Test Date: November 3, 2004

Location: Proposed motocross racetrack at SW. 1st & South St.

1. Seven 10-minute sound equivalent measurements were made at 4 different sites in the vicinity of the proposed motocross track. The distance of these measurement sites from the track ranged from approximately 0.15 miles south of the track (Bison Trail) to 0.5 miles northwest of the track (near Folsom Lane).
2. Three racing event scenarios were used for test purposes. Each test consisted of the following motorcycle types.
 - a. The first event involved 9 bikes consisting mostly of 250 cc 2-stroke engines, but some 450 cc 4-stroke bikes were included. The reason for this is that the racing classes involved in motocross racing allow for the use of this combination of bikes. (450 cc 4-stroke bikes are allowed in 250 cc racing, 450 cc 2-stroke bikes are not).
 - b. The second event involved 10 bikes consisting mostly of 125 cc 2-stroke engines, but a couple of 250 cc 4-stroke bikes were also included, again, for reasons of motocross classes. (250 cc 4-stroke bikes are allowed in 125 cc racing, 250 cc 2-stroke bikes are not).
 - c. A third event involving 14 bikes consisting of a mixture of 125 cc, 250 cc, and 450 cc bikes, as well as one 400 cc ATV, was conducted in order to determine what effects several bikes of different engine sizes would have on the sound results.
3. A pass-by test involving 10 individual bikes was conducted near the west property boundary of the proposed track. The range of engine sizes was 85 cc 2-stroke, 125 cc 2-stroke, 250 cc 2-stroke, 250 cc 4-stroke, 450 cc 4-stroke, and one 400 cc 4-stroke ATV.
4. The test results revealed the following:
 - a. The 10 minute L_{eq} 's (sound equivalent level) recorded do not exceed any of the daytime residential, commercial, or industrial receiving land use levels established in the LMC 8.24.090(a), Table 1.
 - Residential – 65 dba (7:00 a.m. to 10:00 p.m.)
 - Commercial – 70 dba
 - Industrial – 75 dba
 - b. The maximum noise level recorded for each motocross bike (pass-by test) exceeded the 78 dba limit established in the LMC 8.24.110, Table 5.

Motocross Track Sound Testing

SW. 1st and South St.

November 3, 2004

	Start	End
Time that testing occurred:	2:37 p.m.	4:00 p.m.

Temperature:	49 deg. F
Wind Direction & Speed:	Calm @ 0 mph
Cloud Cover:	None

Location	3 minute Leq's (dba)	10 minute Leq's (dba)	Background (dba)
----------	-------------------------	--------------------------	---------------------

Sawyer Snell Park

- 2:40 - 2:50 p.m.	53.46 50.36 50.64	51.94	3 minute Leq (11:15 a.m.) 55.67
--------------------	-------------------------	-------	---------------------------------------

- 2:50 - 3:00 p.m.	53.45 50.74 50.87	51.79	
--------------------	-------------------------	-------	--

- 3:02 - 3:12 p.m.	51.62 52.13 65.19*	60.41*	
--------------------	--------------------------	--------	--

*Influenced by train, prior to train, Leq is 51.88 for the first 6 minutes.

Salt Creek Trail - 0.2 mi south of A Street

- 2:37 - 2:48 p.m.	54.17 52.17 51.00	51.92	3 minute Leq (12:00 p.m.) 52.00
--------------------	-------------------------	-------	---------------------------------------

Bison Trail - north end of Wilderness Park

- 3:07 - 3:20 p.m.	58.20 57.81 56.24	57.31	10 minute Leq (1:45 p.m.) 56.07
--------------------	-------------------------	-------	---------------------------------------

- Bison Trail background readings were taken on October 20, 2004. Weather conditions were as follows:

- Temp.: 50-53 deg. F Humidity: 83-86% Wind Direc.: E to SE Wind Speed: 9-13 mph

Field north of Folsom Lane (SW. 8th & Regina Ct.)

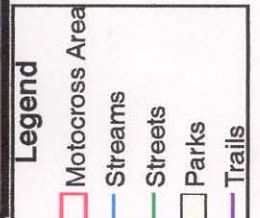
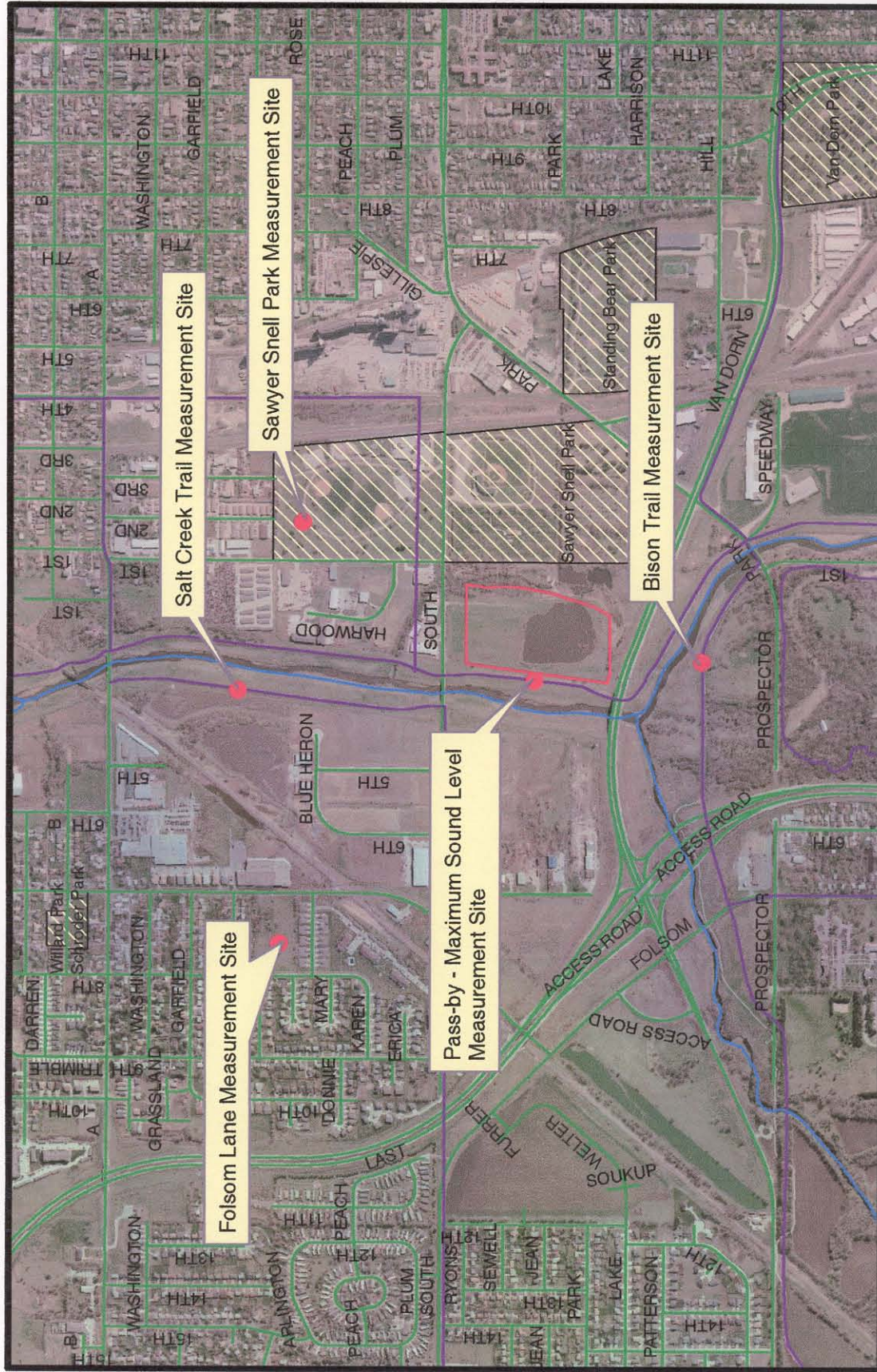
- 2:38 - 3:19 p.m.	50.20 50.10 49.30	50.00	3 minute Leq (12:00 p.m.) 51.06
--------------------	-------------------------	-------	---------------------------------------

	53.40 51.50 56.4** 50.80	52.00	
--	-----------------------------------	-------	--

**This reading was influenced by a train whistle, and is not included in the second 10 minute Leq.

Sound Level Measurement Sites

November 3, 2004 - Motocross Demonstration



1 Miles

0.5

0.25

0



Noise Testing Sampling Sheet

Data Collector (Name): Walsh / Schroeder

Date: November 3, 2004

Location of Test:
(detailed description)

Salt Creek Trail to the west of proposed track site
Approximately 70 feet from the western straightaway

Begin Time: 3:45 p.m.

End Time: 4:00 p.m.

Purpose of Test: Monitoring (Complaint, Monitoring, Background, etc.)

Weather Characteristics:

Temperature: 49.0 °F Cloud Cover: 0 % Cloud Height: -- ft.

Wind Direction: -- Wind Speed: 0 mph Description: Calm
(steady, gusty, variable, etc.)

Type of Measurement: Pass-by maximum levels
(60-sec. L_{eq} , Peak, etc.)

<u>Bike No.</u>	<u>Measured dB</u>	<u>Notes:</u>
1	79.7	85 cc – 2 stroke
2	86.8	85 cc – 2 stroke
3	86.6	85 cc – 2 stroke
4	94.0	125 cc – 2 stroke
5	89.5	125 cc – 2 stroke
6	94.7	250 cc – 4 stroke
7	86.9	250 cc – 2 stroke
8	93.3	450 cc – 4 stroke
9	99.5	450 cc – 4 stroke
10	88.5	400 cc ATV
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

General Notes:

The bike numbers on this sheet correlate directly to the bike numbers on the bike numbers on the Pass-By spreadsheet. To see more detailed information on the bikes used in this testing, refer to the 'Individual Pass-By Sound Testing' spreadsheet.

Individual Pass-By Sound Testing

Motorcross Track Sound Testing/ November 3, 2004

#	Make	Size (cc)	Engine Cycles	Exhaust
1	Kawasaki	85	2	Modified
2	Kawasaki	85	2	Modified
3	Yamaha	85	2	Modified
4	Kawasaki	125	2	Stock
5	KTM	125	2	Modified
6	Honda	250	4	Modified
7	Honda	250	2	Modified
8	Honda	450	4	Stock
9	Honda	450	4	Modified
10*	Honda	400	4	Modified

* #10 was an ATV (4-Wheeler)

Motocross Sound Testing General Comments

Proposed Motocross Track Site at SW. 1st and South St.

November 3, 2004

Time: 2:37 – 4:00 p.m.

Persons involved in testing:

Gary L. Walsh, Senior Environmental Engineer, PhD

Chris M. Schroeder, Environmental Health Specialist II, MCRP

James S. Fobben, Environmental Engineer II, PE

Gary R. Bergstrom, Jr., Environmental Health Specialist I

Aaron C. Kreifels, Air Quality Intern

Comments:

- Sawyer Snell Park: Motocross bike noise is discernible (loudness ranging from moderate to low from qualitative observations). Other discernible noises such as semi-trucks, and train whistles also present. The ADM Milling Co. plant was also discernible, and was a constant noise.
- Salt Creek Trail:
(south of A Street) Motocross bike noise is discernible (loudness ranging from moderate to low from qualitative observations). Other discernible noises such as train whistles also present. The ADM Milling Co. plant was also discernible, and was a constant noise.
- Bison Trail:
(Wilderness Park) Motocross bike noise is discernible (loudness ranging from moderate to low from qualitative observations). Other discernible noises such as traffic, including semi-trucks, moving on Van Dorn St. was also present. James Fobben noted the traffic as being mostly constant.
- North of Folsom Ln.: Motocross bike noise was occasionally discernible in the form of noise spikes (loudness considered to be low by qualitative observations). The predominant noise was traffic on South Folsom Street. When essentially no traffic was present, the sound measured was approximately 48 dba. In one case, train whistle noise from a passing train influenced the noise reading obtained. This was not included in the 2nd ten minute L_{eq} .
- Pass-by Testing: These were the measurements of the maximum sound level readings for individual motocross bikes. The readings were taken on the hike/bike trail approximately 70 feet west of the race track straightaway on the west side of the property. Engine size, engine stroke (2-stroke or 4-stroke), and possible exhaust modifications were noted.
- Racing Scenarios: In the event of actual races, different engine sizes may be running together depending on the type of engine (2-stroke or 4-stroke). According to Dr. Samani, 250 cc 4-stroke engines are permitted to race against 125 cc 2-

stroke engines. Additionally, 400/450 cc 4-stroke engines are permitted to race against 250 cc 2-stroke engines. This is important because the noise measurements that were taken on November 3, 2004 did include two races in which some 400/450 cc 4-stroke bikes raced against some 250 cc 2-stroke bikes, namely in the first and third races.

Background Tests: The background sound readings from Sawyer Snell Park were taken while ADM Milling Company was running their truck receiving pit on the 'D' elevator. This process has been known to create higher noise levels than what are typical of ADM's normal operations. This process is only operational during harvest when grain is being received via truck unloading. There was also a slight southeast wind at 10 mph; the location in Sawyer Snell Park where the readings were taken is approximately straight west of the ADM Milling plant.

Noise Testing Sampling Sheet

Data Collector (Name): Chris Schroeder

Date: November 3, 2004

Location of Test:
(detailed description)

Sawyer Snell Park @ 2nd and South Street, Lincoln, NE
East of ball diamonds

Begin Time: 2:40 p.m.

End Time: 3:00 p.m.

Purpose of Test: Monitoring (Complaint, Monitoring, Background, etc.)

Weather Characteristics:

Temperature: 49.0 °F Cloud Cover: 0 % Cloud Height: -- ft.

Wind Direction: -- Wind Speed: 0 mph Description: Calm
(steady, gusty, variable, etc.)

Type of Measurement: 60 second L_{eq}
(60-sec. L_{eq}, Peak, etc.)

<u>Reading No.</u>	<u>Measured dB</u>	<u>Notes:</u>
1	53.1	250 cc bikes / mill / construction / birds
2	54.4	Bikes / mill
3	52.7	Bikes / mill
4	51.3	Bikes / mill / leaves rustling
5	49.8	Bikes / mill
6	49.8	Bikes / mill
7	50.0	Bikes / mill (bikes more predominant at times)
8	49.7	Bikes / mill
9	51.9	Bikes / mill
10	53.5	Bikes / mill
11	53.5	Bikes / mill / nearby back-up warning
12	54.5	Bikes / mill / motorcycle drove by
13	52.0	Bikes / mill
14	49.8	Bikes / mill
15	51.2	125 cc bikes – seem louder
16	51.1	Bikes / mill
17	51.5	Bikes / mill
18	50.9	Bikes / mill
19	50.1	Bikes / mill
20	50.9	Bikes / mill

Noise Testing Sampling Sheet

Data Collector (Name): Chris Schroeder

Date: November 3, 2004

Location of Test:
(detailed description)

Sawyer Snell Park @ 2nd and South Street, Lincoln, NE
East of ball diamonds

Begin Time: 3:02 p.m.

End Time: 3:12 p.m.

Purpose of Test: Monitoring (Complaint, Monitoring, Background, etc.)

Weather Characteristics:

Temperature: 49.0 °F Cloud Cover: 0 % Cloud Height: -- ft.

Wind Direction: -- Wind Speed: 0 mph Description: Calm
(steady, gusty, variable, etc.)

Type of Measurement: 60 second L_{eq}
(60-sec. L_{eq}, Peak, etc.)

<u>Reading No.</u>	<u>Measured dB</u>	<u>Notes:</u>
1	51.5	125 cc bikes / mill
2	51.2	Mixed 125 cc & 250 cc bikes / mill
3	52.1	Bikes / mill
4	51.8	Bikes / mill / semi truck
5	51.7	Bikes / mill / semi truck
6	52.8	Bikes / mill / semi truck
7	69.6	Bikes / mill / train whistle
8	56.9	Bikes / mill / train whistle
9	54.7	Bikes / mill / train
10	52.2	Bikes / mill / train
11		
12		
13		General Notes:
14		Motocross bike noise was discernible,
15		with loudness ranging from moderate to
16		low. The ADM Milling plant was also
17		discernible as a constant noise.
18		
19		
20		

Noise Testing Sampling Sheet

Data Collector (Name): James Fobben

Date: November 3, 2004

Location of Test:
(detailed description)

Salt Creek Trail near SW 1st & A Street, Lincoln, NE
North of proposed track, next to lone tree along the trail

Begin Time: 2:37 p.m.

End Time: 2:48 p.m.

Purpose of Test: Monitoring (Complaint, Monitoring, Background, etc.)

Weather Characteristics:

Temperature: 49.0 °F Cloud Cover: 0 % Cloud Height: -- ft.

Wind Direction: -- Wind Speed: 0 mph Description: Calm
(steady, gusty, variable, etc.)

Type of Measurement: 60 second L_{eq}
(60-sec. L_{eq}, Peak, etc.)

<u>Reading No.</u>	<u>Measured dB</u>	<u>Notes:</u>
1	54.5	250 cc bikes / some light mill noise
2	54.0	Bikes / mill / insects
3	54.0	Bikes / mill / insects
4	53.5	Bikes / mill / insects
5	52.0	Bikes / mill / insects
6	50.5	Bikes / mill / insects
7	50.0	Bikes / mill / insects
8	50.0	Bikes / mill / insects
9	52.5	Bikes / car stereo
10	51.0	Bikes / mill / insects
11		
12		General notes:
13		Motorcycle sounds were easily
14		discernable, loudness was moderate
15		to low.
16		
17		
18		
19		
20		

Noise Testing Sampling Sheet

Data Collector (Name): James Fobben

Date: November 3, 2004

Location of Test:
(detailed description)

Bison Trail west of Wilderness Park, Lincoln, NE
Sampled next to "Prairie in Progress" sign

Begin Time: 3:07 p.m.

End Time: 3:20 p.m.

Purpose of Test: Monitoring (Complaint, Monitoring, Background, etc.)

Weather Characteristics:

Temperature: 49.0 °F Cloud Cover: 0 % Cloud Height: -- ft.

Wind Direction: -- Wind Speed: 0 mph Description: Calm
(steady, gusty, variable, etc.)

Type of Measurement: 60 second L_{eq}
(60-sec. L_{eq}, Peak, etc.)

<u>Reading No.</u>	<u>Measured dB</u>	<u>Notes:</u>
1	59.0	Bikes / Van Dorn traffic
2	59.0	Bikes / Van Dorn traffic
3	56.0	Bikes / Van Dorn traffic
4	56.0	Bikes / Van Dorn traffic
5	58.5	Bikes / Van Dorn traffic
6	58.5	Bikes / Van Dorn traffic
7	58.0	Bikes / Van Dorn traffic
8	55.0	Bikes / Van Dorn traffic
9	55.0	Bikes / Van Dorn traffic
10	55.0	Bikes / Van Dorn traffic
11	57.0	Bikes / Van Dorn traffic
12		
13		General Notes:
14		Motorcycle sounds were easily
15		discernable, loudness was moderate
16		to low. Van Dorn traffic noise seems
17		to be fairly constant.
18		
19		
20		